AMSAT SATELLITE REPORT

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Board Action Summary

The AMSAT Board of Directors met the weekend of 3-4 April. The following is the briefest of summaries of the meeting. The official minutes will be published in a future issue of *ORBIT*.

AMSAT officials attending included: JA1ANG, K9LF, KE3D, N3ADZ, Martha Saragovitz, W6SP, W3IWI, VE2VQ, K1HTV, W3GEY, G3IOR, W3XO, W1XT and WA2LQQ. Special guests of the Board were K2UBC, W3OZ, W3PK and KA4JFO.

Beginning on Saturday the Board reviewed negotiating postures vis a vis American Satellite Corporation (ASC) with regard to licensing the trademarked AMSAT name for use by ASC. The matter was discussed further on Sunday when W6SP was authorized to negotiate on behalf of AMSAT.

Next W3GEY presented a Phase IIIB status report. In summa he said that our systems are coming together very well but that we faced a minimum two month launch delay consequent to problems with MARECS-A. He said we should know more in a few weeks.

The Board authorized President W3IWI to commence at once a search for a salaried General Manager for AMSAT. A preliminary job description was discussed and several candidate employees were mentioned.

A proposal authored by W2FPY to pursue a liaison with a university engineering department for the purpose of cooperative efforts was read into the minutes. The Board thought it a worthy proposal and authorized a more detailed proposal and initial contacts be established. Similarly the Board believes that cooperation with the Independent Space Research Group (ISRG) be pursued with vigor.

G3IOR proposed a fund-raising effort based on sponsoring satellite operations time. K9LF announced his plans for renewed fund-raising.

The Board heard a report on the AMSAT Publications activity from WA2LQQ and W1XT.

On Sunday G3IOR reported on the project under way by KQ5S to work for AMSAT fund-raising through Rotary International. The Board authorized a booth at the Rotary Convention in Dallas this June and recommended the officers seek out AMSAT members who are rotarians to assist in this and later projects.

The Board endorsed the concept of AMSAT members exchanging their member numbers over the air as a way of encouraging membership and perhaps also for an occasional award. The idea of using this as the basis of a "contest" was rebuffed, however.

W6SP led a discussion on the benefits of participating in Armed Forces Communications-Electronics Association (AFCEA) activities. The Board authorized W6SP to lead an effort to obtain an AMSAT booth at the AFCEA National Convention this June 15-17 in Washington, D.C.

G3IOR read a report on UoSAT he had hand carried to the meeting from G3YJO. The spacecraft prognosis is now excellent with all major problems having been remedied or nearly so. The single exception is the 40 KeV geiger tube which is inoperative and appears to have been damaged at launch. All other equipment has been tested and found to be in good working order.

The Board directed that nominations for Director be opened promptly so that the nominations could be obtained from as many potential areas as possible. The Board voted down a motion to increase their number from 7 (present) to 9. The Board agreed to separate (in time) the annual meeting from the autumn Board meeting.

W3XO received a go-ahead on his proposal to work with the Johnson Space Flight Center Amateur Radio Club (Houston) to provide an amateur radio link with a future Space Shuttle mission. The Board generally approved of the concept and requires now a more detailed proposal.

Folks participating at the recent AMSAT Board Meeting clockwise from Martha (center, top) are: W6SP, W3IWI, VE2VQ, K1HTV, W3GEY, G3IOR, K9LF, JA1ANG, and KE3D.

W3GEY will head an ad hoc committee to develop "ways and means" to recruit new AMSAT managers.

KA4JFO made an invited presentation to the Board on the plans for a National Science Center for Communications and Electronics. This facility is being sponsored by, among others, AFCEA. The Board enthusiastically endorsed the objectives of the Partnership for the Development of National Engineering Resources and directed that efforts commence immediately to investigate how closer ties might be fostered.

WA2LQQ will present a plan this autumn for restructuring the organization to respond to expected changes attending the Phase IIIB launch.

Project OSCAR Calendars

Project OSCAR announces the availability of a new set of amateur radio satellite orbital predictions. This set of predictions is bound in a single volume and covers the period of May 1 to December 31, 1982. Listed are the UTC times and longitudes of *all* south to north equatorial crossings for AMSAT-OSCAR 8 and the 6 Russian Radio Satellites. To offset the large expense incurred to produce and disseminate a calendar of this magnitude a donation of $8.75 U.S. is requested for each copy of the calendar. To receive your copy, send a mailing label and a check or money order payable to Project OSCAR, Inc., POB 1136, Los Altos, CA 94022. This price includes the cost of mailing within the U.S., Canada and Mexico. The calendars will be mailed during the last week of April. This new calendar will replace the usual quarterly predictions which Project OSCAR, with the support of Henry Radio, has made in the past.

UoSAT is not covered because of the intractable nature of the orbit; it's just not possible to reliably predict its motion and position more than a few weeks hence.

ESA Announces Launch Delay

A launch schedule slip in the Ariane Program has been announced by ESA, the European Space Agency. The announcement cited a minimum two month delay beginning with L5, the first operational Ariane launch scheduled. L5 had been scheduled for late April, 82. AMSAT's Phase IIIB spacecraft was scheduled for late July 82 aboard Ariane L6.

The delay results from technical problems not with the Ariane launcher itself, but rather with the payloads. In particular, the MARECS-A satellite launched by Ariane LO4 last December has developed severe problems attributable to a so-called "plasma sheath." This ionized layer envelopes the spacecraft and the periodic discharges of the corona-like phenomenon cause potentially catastrophic damage to the spacecraft. The exact cause of the MARECS-A plasma sheath is under study. The possibilities are many and include spacecraft outgassing as well as other more obscure causes.

The L5 and later launches are being delayed since several of the spacecraft scheduled for launch use designs similar to that of the problem-prone MARECS-A, e.g., MARECS-B, ECS, et al. Further muddying the planners' view is the possibility of swaping spacecraft for specific launches. Pressure is likely being brought to bear on ESA by such major customers as Intelsat to be allowed a preferrred position in the now confused queue.

AMSAT estimates the Phase IIIB launch can occur no earlier than 30 Sept. 82 based on the best information now available. A better picture may emerge by mid-April when ESA is expected to announce its reformulated plans.

AMSAT Dayton Program Slated

AMSAT plans for presentations at the Dayton Hamvention this year include presentations by several AMSAT luminaries as well as an open forum and question/answer session. Program Coordinator Doug Loughmiller, K05I, will join AMSAT President Tom Clark, W3IWI and Vice President (Operations) Rich Zwirko, K1HTV, at the podium for presentations of Phase IIIB and current satellite usage. The two program sections are scheduled for 90 minutes on Saturday, 25 April. A good turn-out of AMSAT members is expected.

RCA: "Vintage Tubes To Go"

The Radio Corporation of America (RCA) has announced its plan to cease manufacturing some classic tubes. Many a ham first reached the airwaves with some of the newly announced discontinued types. Among the more familiar are: 807, 813, 811A and the ubiquitous 2E26. *ASR* Editor WA2LQQ was quoted as bemoaning the fact that "a cold 4CX250B just doesn't have the 'flavor' of an 807!"

The notice of intent to discontinue appeared in the trade journal, *Electronic Buyers Guide*, 15 Feb. 82. Usually when a manufacturer announces intent to discontinue, he does so in advance to allow users of the product time to make a last purchase to (presumably) provision spares for the affected equipment for the balance of the expected life of the equipment. It was not announced when RCA would close the books on all future orders of the discontinued styles.

The result on hams who use, for example, 807s or 813s, is that the flea market value of these will likely rise almost immediately since they will be hoarded against the day when they become rare.

New OSCAR Slide Set

AMSAT has received new slide sets and is offerring these to interested amateurs.

The 35mm mounted slides cover OSCARs 1 through 9. There are 40 slides in all and a narrative description of each slide accompanies the set. A portion of the $10 price goes towards AMSAT. To order your set send to: AMSAT, P.O. Box 27, Washington, DC 20044. Please allow 3-4 weeks delivery in the U.S. and more elsewhere. Please enclose your payment of $10 (U.S.) in the form of check (drawn on a U.S. bank) or international money order. Be sure to enclose your address legibly.

	RS-3	RS-4	RS-5	RS-6	RS-7	RS-8
Element Set #	21	27	25	16	28	53
Ref. Epoch	82 75.08292019	82 81.37592830	82 85.40543470	82 68.88329971	82 87.42620708	82 85.41293445
1st Der. Mean Mot.	0.00000026	0.00000026	0.00000031	0.0000033	−0.0000003	0.00000201
Inclination	82.9555	82.9556	82.9562	82.9534	82.9573	82.9550
RAAN	230.0135	227.4526	225.4135	233.6341	223.8918	225.5866
Eccentricity	0.0057988	0.0017156	0.0009023	0.0049736	0.0021411	0.0019291
Arg. of Perigee	273.2541	316.4043	342.3044	298.2885	267.1347	16.2928
Mean Anomaly	86.1931	43.5667	17.7708	61.3165	92.7258	343.8732
Mean Motion	12.15574229	12.06644928	12.05023766	12.13539505	12.08660483	12.02916908
Rev. # of Ref. Epoch	1077	1145	1192	1000	1220	1190

DX Barrage Continues

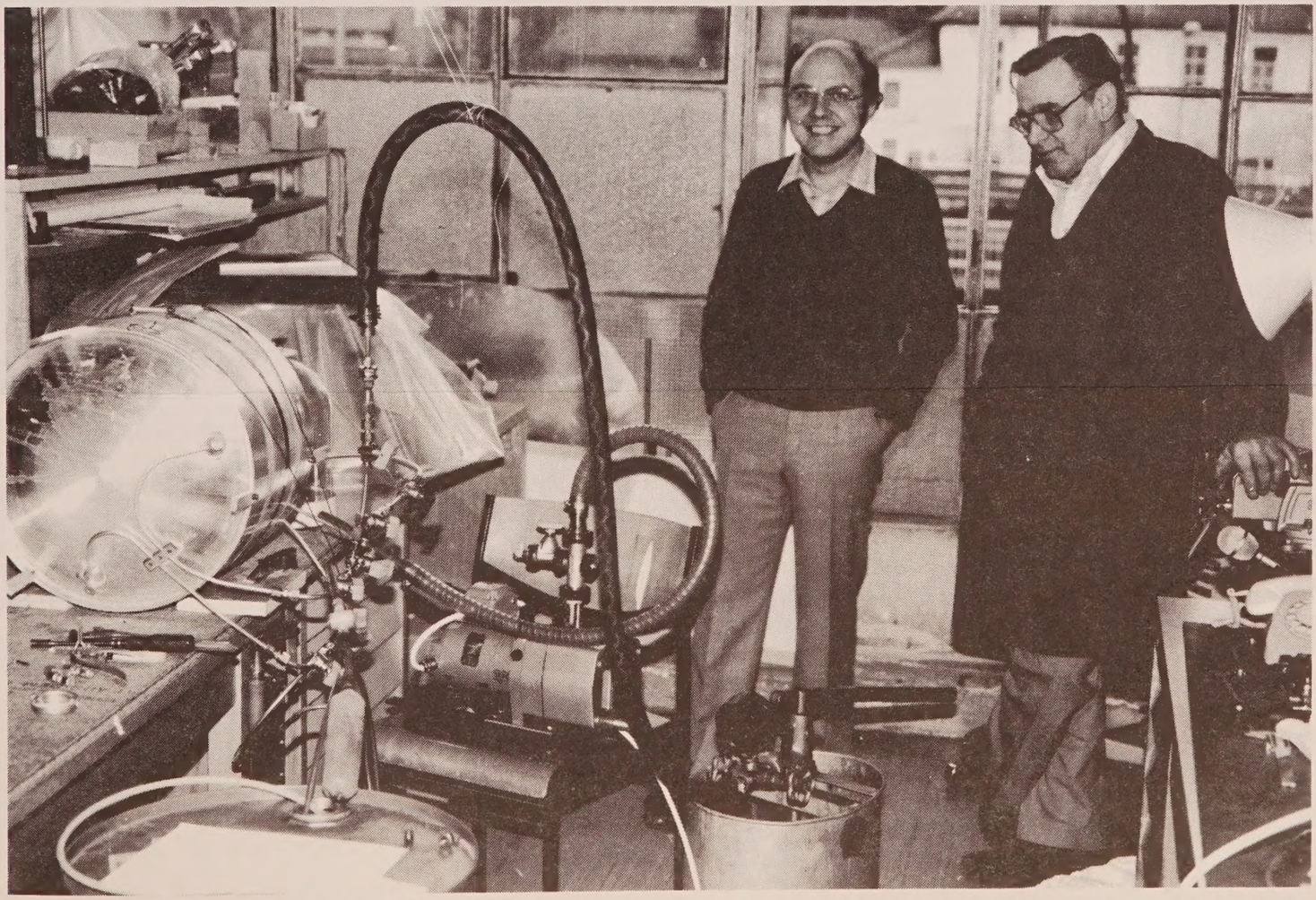
Four more East Coast stations have worked KH6IBA to complete the requirements for a satellite endorsement to the Worked All States (WAS) award. The DX barrage opened by the RSs was reported in *ASR* #26. Now come reports of three additional members of the North Jersey DX Association having made the grade: W3CWB/2; W2BXA; W2YY. Wally, K4UAS in North Carolina managed to work both KH6IBA and WH6AMX. The latter is almost 100 miles further west than the former. K4UAS's view of WH6AMX is benefitted by being further west than the NJDXA chaps by just about that amount.

In other DX activity accompanying the RS birds, *ASR* has learned that at least three more active AMSAT members had managed to work XF4MDX (See *ASR* #27). The additional lucky DXers are KO5I, WB5PMR and WA5ZIB all of Texas. XF4 counts as a separate country on the ARRL countries list.

ARRL Boosts Support By $10K

The ARRL has announced its intent to provide an additional $10,000 to the ARRL Foundation Amateur Space Program Matching Fund. The Foundation had presented a $60,000 check to AMSAT last year to help finance the Phase IIIB project.

All AMSAT members are indebted to ARRL and the ARRL Foundation for their continued, *enthusiastic* support of the Amateur Space Program through AMSAT. Thanks!



Karl Meinzer, DJ4ZC (left) and Konrad Mueller watch as the Phase IIIB fuel tank is tested. This early March '82 photo was taken at the AMSAT DL Lab in Marburg, West Germany. The fuel tank was subsequently shipped to the U.S. and is now installed in the Phase IIIB spaceframe at the AMSAT-OSCAR Spacecraft Lab at the Goddard Space Flight Center.

Ground Station Specs Set

Tests of the Phase IIIB transponders at Marburg, West Germany have yielded some preliminary indications of what the specifications of a typical ground station will be. The following is a loose translation of the communication from the AMSAT DL Lab at Marburg.

"U Transponder" (Also called Mode B; 70 cm up, 2 m down)

"This transponder requires 21.5 dBW EIRP uplink for a 20 dB signal to noise ratio (S/N) at the specified range to the satellite. This calls for a transmitter power of 10 watts to a 12 dBi antenna. For reception, an antenna of at least 10 dBi gain should be used. (Assumes receive noise figure of 5 dB and bandwidth of 2.4 kHz.) In a satisfactory receive station the engineering beacon should appear at a 17 dB S/N ratio.

"L Transponder" (Also called Mode X; 24 cm up, 20 cm down)

"This transponder requires 28.8 dBW EIRP uplink for a 20 dB S/N ratio at the specified range to the satellite. This calls for a transmitter power of 3 watts into a 24 dBi antenna or 50 watts to a 12 dBi antenna. For reception an antenna with at least 13.5 dBi gain should be used. (Assumes receive noise figure of 3 dB and bandwidth of 2.4 kHz.) In a satisfactory receive station the engineering beacon should be 17 dB above the noise.

"All antenna gain figures assume the antennas employed are Right Hand Circularly Polarized. If linearly polarized antennas are used on the ground an additional 3 dB is required. In addition, if linear polarization is used somewhat more fading is to be expected."

These figures are moderately more optimistic than previous estimates given. The net effect is the requirements levied on ground stations are reduced a bit. That is, for a given S/N ratio and receiver noise figure, the uplink power requirement has been reduced. The final recommendations for ground station capabilities will be made once the spacecraft is in orbit and engineering tests have been completed. Also one should take note that the effects of downlink fading for a station using linearly polarized antennas may vary from "noticeable" to "intolerable." A word to the wise...

	AO-8	UO-9
Element Set #	640	152
Ref. Epoch	82 88.56240161	82 89.0689801
1st Der. Mean Mot.	0.0000003	0.00014697
Inclination	98.7899	97.4885
RAAN	117.0529	52.8779
Eccentricity	0.0006690	0.0005204
Arg. of Perigee	113.2033	59.9139
Mean Anomaly	246.9734	300.2628
Mean Motion	13.964330082	15.14509666
Rev. # of Ref. Epoch	20718	2640

Start Video Tape Library

AMSAT's long-awaited video tape library officially began operations on 1 April. The purpose of the library is to provide AMSAT members access to the video tape produced by W4MID (and others) describing AMSAT and the amateur space program. The tape has received rave reviews and is intended for presentation at club meetings, forums, etc.

The demand is expected to be great so you should get your reservations in early. Tapes will be available on a loan basis, first-come, first-served. Full details may be obtained from the AMSAT Video Tape Librarian: Roger Johnson, WBØGAI, 1627 36th Ave. Court, Greeley, CO 80634. You must enclose a S.A.S.E. or IRC's plus mailing label. A $25 deposit is required. Borrower pays a small fee. Inquire by mail only to WBØGAI.

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